INTRODUCTION

INFORMATION NEEDS OF THE FEDERAL LOGISTICS INFORMATION SYSTEM BY ITS END USERS

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The purpose of this presentation is to provide feedback from end users to those able to assist. End users have been having increasing difficulty with that area of the Defense Logistics Agency's (DLA) Federal Logistics Information System(FLIS) dealing with the identification of items listed under stock numbers.

I am Marvin (or Woody) Woodworth, from OC-ALC/TILDO at Tinker AFB, Oklahoma. My background of being an end user of DLA's FLIS goes back all the way to 1965. When I first began using cataloging data, it was available only in paper notebook libraries. At that time, DLA's FLIS data was still being processed on 80 column cards. That was before microfiche, and long before computers. I have been in the procurement business and an intensive user of the FLIS from 1969 to the present.

BACKGROUND

- DATABASE INTERFACE PRODUCES INCORRECT DATA TO END USER'S
- PREVIOUS WORKAROUNDS NO LONGER POSSIBLE DUE TO THE NEW DIGITAL ERA OF THE END USER
- NO END USER FEEDBACK TO FLIS
- NO DLA FLIS GUIDANCE ON FLIS "CAGE CODE" ENTRIES
- CHANGES IN DRAWING OWNERSHIP
- GSA AUDIT: "DLA MUST ADD SOURCES"

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The FLIS has been providing inadequate and incorrect data to the end user customers for many years. In addition, the FLIS is not providing the kind of item and source identification that we customers must have. This has always been a problem for us in spares reprocurement screening and other areas of procurement. But back in the days when we used paper, we customers could eventually get around bad FLIS data with independent research and correction tape. Workarounds that we customers routinely did for 30 years before to get around defective data in the FLIS just does not work anymore, because computers no longer allow us to use correction tape.

We customers of the FLIS have been manually working around serious problems in the FLIS for about 30 years. For 30 years there has been little or no end user feedback to the FLIS so it can give us better data. Standard procedure is "Customers do not complain to the FLIS", because standard procedure is to tell a complaining customer "That's the way it is. The system can't be changed or fixed. " And that's the way it's been since at least 1966. In 1990, the D043 computer system, an Air Force version of the FLIS, began directly feeding our new procurement screening computers with garbled data. Of course, that produced serious procurement data errors. Our attempts to correct entries in FLIS is frustrating, because entries in FLIS are mandated to do the very things in FLIS that produce errors in our system. When we do get something corrected, someone in FLIS puts the same errors back in.

One of the greatest problems for the customer is that there are literally no rules in FLIS for what goes in the CAGE code column. We customers have to know WHOSE part number we're going to buy and WHOSE drawing we're going to use to compete parts. But DLA regulations have no CAGE code rules for whose part, whose drawing, or where we're going to buy a part. Who issued the drawing and part? The current owner of the drawings for the part? An approved source for a part number? The FLIS literally does not know. In the absence of a system and FLIS rules, each service, office, and cataloger make up their own competing, conflicting, and illogical "rules". The customer suffers from this chaos.

When a drawing changes ownership, the customer identifies the drawing and part one way, and FLIS personnel try to identify the part in a conflicting way.

Sources? When when the FLIS was designed in 1952, it was for identification only, and had no capability for showing sources. It still has no capability for showing sources. But after a GSA audit and a Public Law, DLA decided in 1988 it would start showing sources. How? They never provided a "how". They provide no system or rules. We don't know whether the CAGE is the part's original creator, the owner, a source, or what. There is no identification that we customers must have. Training? There are no rules to train anyone.

FUNDAMENTAL AGREEMENT

ANY PART NUMBER, UNLESS ITS DESIGN ACTIVITY IS STATED OR UNDERSTOOD, IS AN UNIDENTIFIED PART NUMBER.

AND

ANY DOCUMENT NUMBER, UNLESS ITS DESIGN ACTIVITY IS STATED 0R UNDERSTOOD, IS AN UNIDENTIFIED DOCUMENT NUMBER.

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These statements are facts everyone seems to agree on.

Does everyone agree with these statements?

Good.

This presentation is based on these fundamentals.

BASIC END USER NEEDS:

- WHAT IS THE PART NUMBER?
- WHOSE PART NUMBER IS IT (ORIGINALLY)?
- WHO IS THE MOST RECENT OWNER OF THE DRAWING?
- WHAT IS THE DRAWING NUMBER?
- NOW THAT THE ITEM IS IDENTIFIED BY "PART NUMBER" AND "WHOSE IT IS", WHERE CAN WE BUY IT? (IF WE DON'T HAVE RIGHTS TO COMPETE)
  - OTHER SOURCE BREAKDOWN CONSIDERATIONS
    - COMPANY SALES OFFICE OF CURRENT DRAWING OWNER
    - KNOWN SOURCES
    - POTENTIAL SOURCES (DWGS AND APPROVAL REQUIRED)

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As customers, the first thing we have to know is "What is the part number?" That's obvious.

Next, we have to know who originally created the part number. The original creator, or "original design activity" is an never changing element that is always used to provide an absolute identification. That is how DOD and industry standards uniquely identify parts -- by the ORIGINAL design activity (or "ODA") of the part. For DOD identification across information systems, this is mandatory.

Next, we have to know who is the CURRENT ENGINEERING DRAWING OWNER, or CURRENT DESIGN ACTIVITY (CDA), of the part. This may be independent of a company sales office. If we need a copy of the drawing, we need to know where we can acquire a copy of that drawing.

Next, the drawing number or document number for the part needs to be known by the customers.

Then, we need to know where we can buy the part. The owner of a part may not want to sell a part directly to the government. He may want to sell the part through a different company sales office, or through outside supply houses or distributors. If there are known or approved sources, we want those identified, too.

RESULTS OF FAILURE TO IDENTIFY ITEMS

- ENGINE FELL OFF AIRCRAFT - RIGHT BOLT PART NUMBER, MADE TO DRAWING, WRONG CAGE
- $1.6M PR “NO BID” FROM TWO KNOWN SOURCES BECAUSE “WHOSE” CAGE PN NOT GIVEN.
- WRONG DWGS SHIPPED - RIGHT D/N., WRONG CAGE.
- WRONG POWER SUPPLY SHIPPED. RIGHT P/N - WRONG CAGE
- $Ms IN “NO BIDS” -- “DON’T RECOGNIZE P/N”

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Exact identification of items is very important. One must identify parts by both part number and “whose” part number, or suffer consequences.

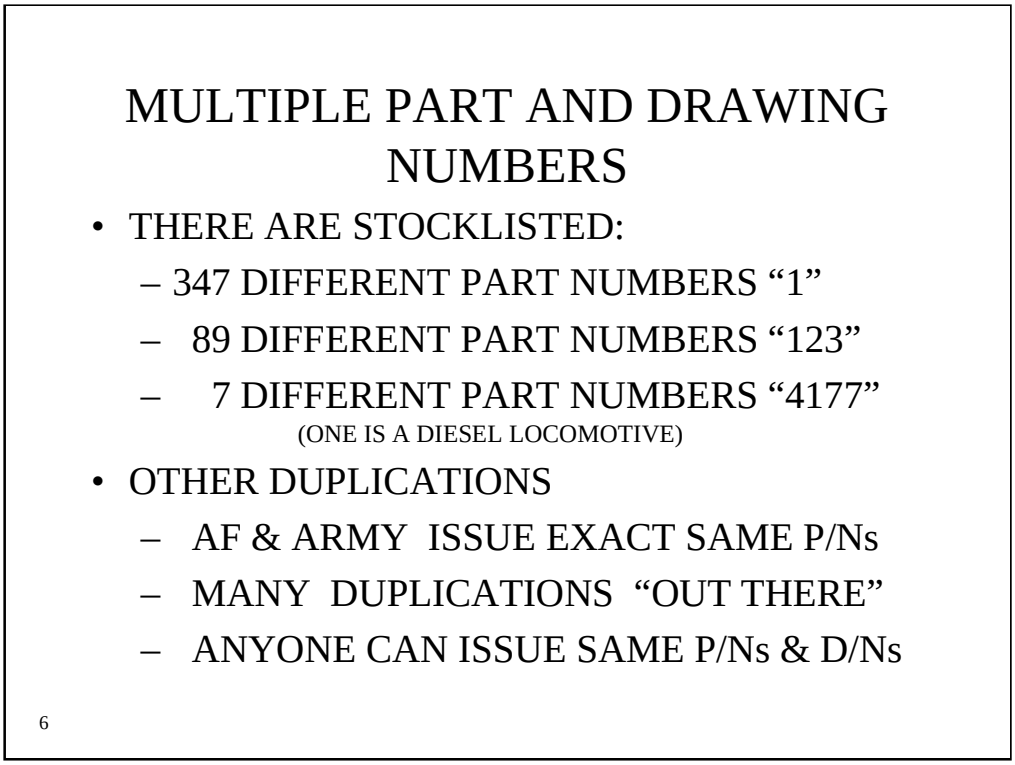
1980s. An engine fell off an aircraft. The part was bought by part number alone from a contractor for $50 instead of $500. When they installed it and backed the stand away, the bolt broke and the engine fell to the concrete with damage. The contractor was told he didn’t meet the drawings. The contractor disagreed and pulled out his own drawings. He met his drawings, but not the Pratt and Whitney drawings. The part was wrong and the government was wrong, because the government did not identify the part with both part number and CAGE code.

1991. On a 1.6 million dollar buy for a Hughes valve, the only two known sources , which were already qualified by Hughes, “no bid” because the AF failed to identify whose part number we wanted. Both said “they did not recognize the part number, and it wasn’t theirs”. After 6 months of delays, the AF finally identified the part number to both sources as a Hughes part number, and the AF quickly received competitive bids from both. The AF went from “no sources” to competitive bids by identifying the part number as to “whose”.

1994. We received a wrong drawing from Sundstrand that was the right drawing number. Sundstrand had two drawings of the same number, one they acquired from another product line owner, and one of their own. Sundstrand requests that we always identify orders for parts and drawings by the original design activity CAGE code from now on, as they have many duplicated drawing numbers with that problem.

1990s Ogden reports that a wrong power supply for the F16 was procured by part number only, and the output voltage was incorrect. Similar to the engine bolt above, the AF had to pay for and scrap the wrong power supply, because the part number was correct and the company used their own drawings for the part number. The AF got the wrong part because the AF did not identify whose CAGE code was to be used as part of the item identification.

Every working day our buyers receive responses saying “We no bid - we don’t recognize the part number”, often because they were not identified as to whose. The tragedy is that this incomplete identification practice has been occurring every working day for the past 35 years. The government has lost millions, perhaps billions over the past 35 years in “no bids”, because the AF system literally fails to adequately identify parts. We ask for part numbers, but we don’t identify whose part number. While the AF purchase system is at fault, the FLIS shares the blame, because the FLIS does not adequately identify parts.



The problem with trying to use part numbers alone to identify items is obvious. Every design activity can issue drawing numbers and part numbers starting with the number “1” and go up. In fact there are 347 part numbers “1” stocklisted. That doesn’t even begin to scratch the surface for all of the “1”s out there.

There are 89 different part numbers “123” stocklisted. There are 7 different part numbers “4177” stocklisted. One part number 4177 is a 47 ton General Electric diesel locomotive. But GE also has a part number 4177 that is a grommet. (Be careful which GE part number you order. EX: “Part number 4177 is here.” “Just put it up there on the shelf”.)

There are thousands of part number duplications. As shown here, anyone can issue the same part number as anyone else. Anyone can reverse engineer the same stocklisted part number, and assign the same part number as their own. That is legal. In fact, the Army, Air Force, Honeywell, Boeing, and others all issue the exact same drawing numbers, although for unrelated items. And what FLIS personnel have to contend with as far as stocklisted duplications is negligible compared to the far greater unstocklisted duplications that we end users must deal with. For example, of the 7 part numbers 4177 stocklisted, the data repository at OC-ALC in Oklahoma City has eleven drawings of the same number, but not one are the same as the part number 4177s stocklisted.

Is there some way that each of these different parts with the same part number be kept uniquely identified? And reverse engineered parts, too? YES.

DOD/INDUSTRY ITEM IDENTIFICATION

- SYSTEM OF ITEM AND DOCUMENT IDENTIFICATION MANDATORY AND REQUIRED BY MIL-STD-100E
- WILL BE CONTINUED IN ASME Y14.100
- INDUSTRY PARTICIPATED AND ENDORSED MIL-STD-100E ITEM IDENTIFICATION SYSTEM.
- ESSENTIAL TO FUNCTION IN DIGITAL ERA

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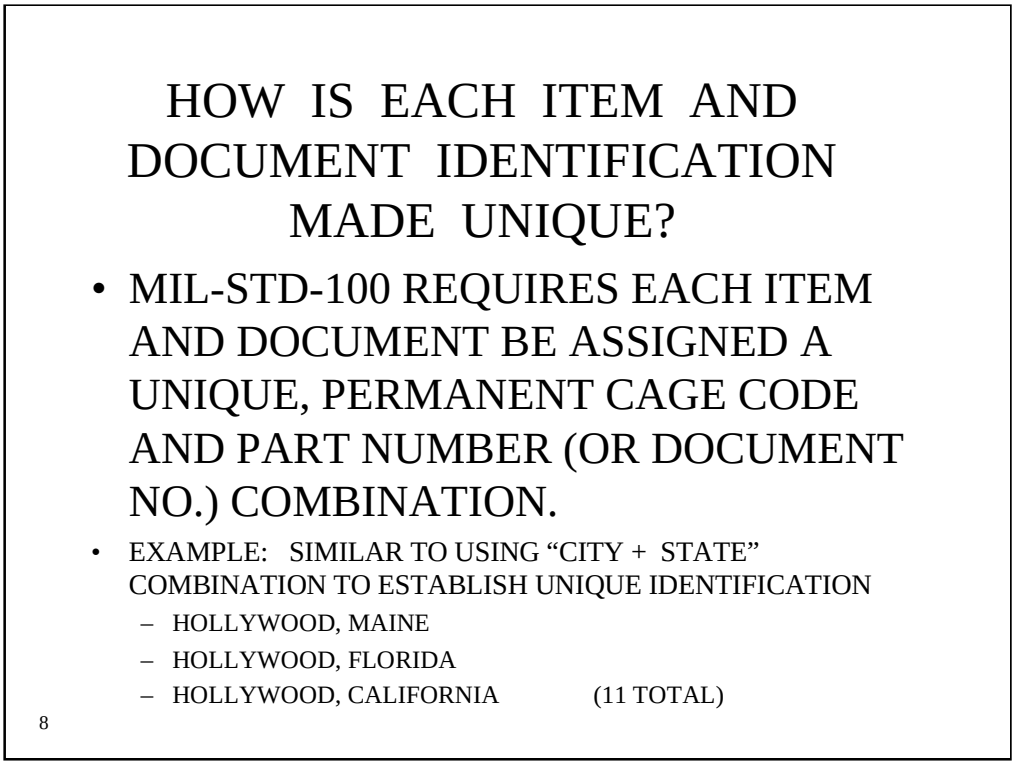
There is a proven, standardized system in place right now that resolves all FLIS problems with trying to identify parts and drawings.

That system is an existing industry and DoD system in place that is mandatory for both the identification of items and documents. On the drawing side, it has been in place for drawings since 1959 -- that is 37 years. For items, the system has been in place for items since 1965 -- or 31 years, and was refined in 1967 to be an absolute, never changing, cradle-to-grave system for uniquely, flawlessly, and permanently identifying any item, and any drawing.

This system will be used in ASME Y14.100 when released in late 1996.

Will industry go along with it? Of course! They have for years. Industry has had full participation in this identification practice in the present MIL-STD-100E, and of course in ASME Y14.100.

This DOD/Industry system for identifying drawings and parts is absolutely essential for exchanging information across DoD and Industry digital systems.



How is each item and document identification made unique?

MIL-STD-100 requires each item and document to be assigned a permanent CAGE code and part number or document number.

This combination forms an absolutely unique combination, in the same manner that a combination of "city and state" forms a unique identification. For example, there are 11 different Hollywoods in the US. But each Hollywood identification becomes unique when the city is used in combination with its state.

In the same manner, no matter how many duplicated part numbers there are, every item with a permanently assigned CAGE and part number combination is absolutely unique from cradle to grave..

ITEM IDENTIFICATION

- MIL-STD-100E PARA 3.44: "The **combination** of the part or identifying number and the **original** design activity CAGE code. (NOTE: Not applicable to vendor item drawings)"

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What is “item identification”? The **combination** of the part or identifying number and the **original** design activity CAGE code.

ORIGINAL DESIGN ACTIVITY

- MIL-STD-100E PARA 3.59: "An activity (Government or contractor) having had responsibility **originally** for the design of an item and **whose drawing number and CAGE code is shown in the title block of drawings and associated documents."**

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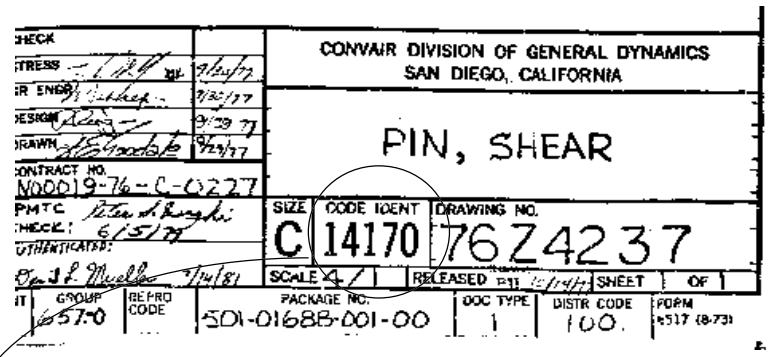
What is an “original design activity”?

It is an activity (Government or contractor) having had responsibility ORIGINALLY for the design of an item and WHOSE DRAWING NUMBER AND CAGE CODE IS SHOWN IN THE TITLE BLOCK OF DRAWINGS AND ASSOCIATED DOCUMENTS.

WHERE IS THE ORIGINAL DESIGN ACTIVITY FOUND?



- ORIGINAL DESIGN ACTIVITY

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Where is this “ORIGINAL DESIGN ACTIVITY”?

Right there.

EXAMPLES: UNIQUE, PERMANENT ITEM AND DOCUMENT IDENTIFICATION

- **ITEM IDENTIFICATION: COMBINATION OF ORIGINAL DESIGN ACTIVITY (ODA) CAGE CODE AND PART NUMBER**
  - EX: ODA CAGEC 81205 P/N 65C29844-01
  - EX: ODA CAGEC 98748 P/N 65C29844-01
- **DOCUMENT IDENTIFICATION: COMBINATION OF ODA CAGE CODE AND DRAWING NUMBER**
  - EX: ODA CAGEC 81205 D/N 65C29844
  - EX: ODA CAGEC 98748 D/N 65C29844

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This example shows how part numbers and drawing numbers used by both Boeing and the Air Force (with both parts totally unrelated) are kept uniquely identified. It is accomplished by using the combination of the ODA CAGE code and part or drawing number.

IDENTIFICATION REQUIREMENT

- MIL-STD-100E, PARAGRAPH 406.4
  - The CAGE code ***shall*** be the CAGE number of the design activity whose drawing number is ***assigned*** to the drawing and shall be entered on the drawing in the appropriate block, as shown in Figure 400-1. ***CAGE code assignment*** shall establish a relationship between the ***assigned code*** and the design activity name and address, ***at the time of assignment***."

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(Read slide)

This is the mandatory DoD requirement for assigning a CAGE code number to drawings. Again, this will be in ASME Y14.100 when published.

TRANSFERRING DRAWINGS

- MIL-STD-100, PARAGRAPH 406.9
  "*... .* ***In no case will the original design activity be changed or relocated to indicate a new CAGE code.*** In addition, the CAGE code of the original design activity specified in the item identification marking requirement shall not be changed."

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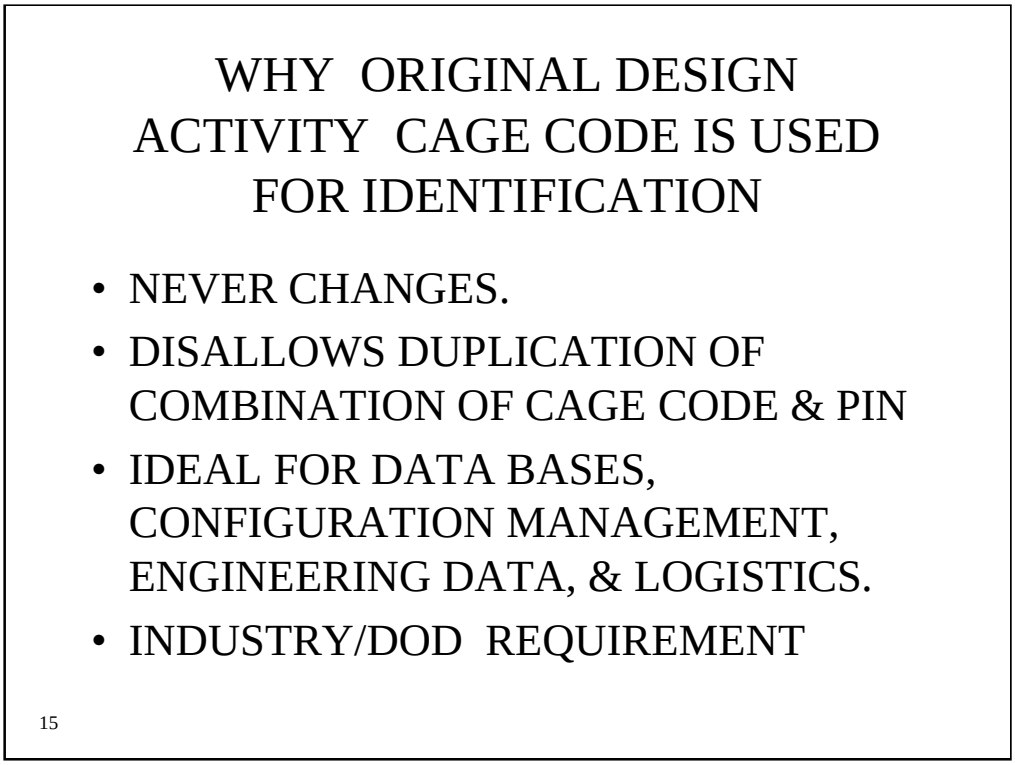
(Read slide)

As shown here, once an ODA CAGE code is assigned to a drawing, it never changes.



Why is the original design activity CAGE code used for identification?

Because it never changes.

It disallows duplication of CAGE code and part or drawing number combinations.

That makes it ideal for sharing sharing information across the data bases and information systems of configuration management, engineering, engineering data, and logistics.

And finally, it is a **mandatory** standardization practice used by both DoD and Industry.

DOD DATA BASE DESIGN

- DOD 8320.1-M-1, DATA ELEMENT STANDARDIZATION PROCEDURES,: CHAPTER 3, PARAGRAPH B1d:
  - "DATA ELEMENTS MUST BE DESIGNED:
    - D. SO THAT IT HAS **SINGULARITY** OF PURPOSE. DATA ELEMENTS **MUST NOT HAVE MORE THAN ONE MEANING**. A DATA ELEMENT SHOULD REFLECT A SINGLE CONCEPT TO PROMOTE **SHAREABILITY** AND DATA INDEPENDENCE FROM APPLICATIONS SHARING THE DATA ELEMENT."

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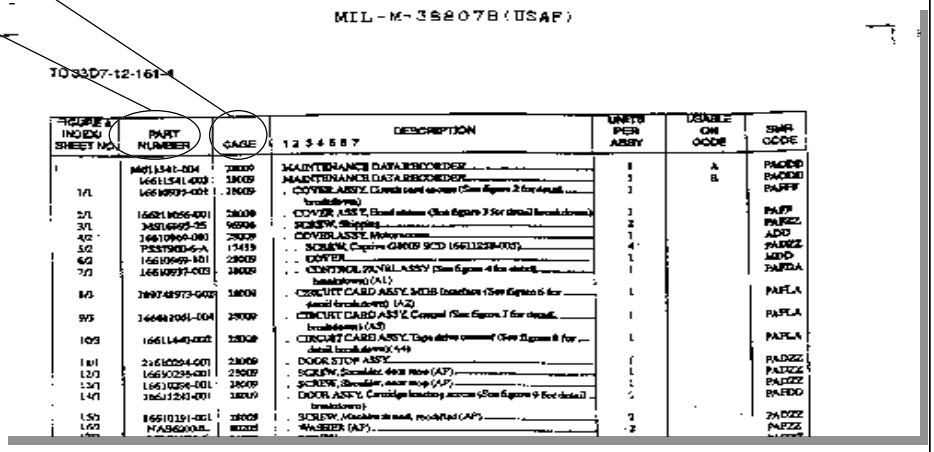
DOD Directive 8320.1, issued 14 Jan 93, requires all involved with information systems to standardize data elements to single meaning data fields so that all data bases can share data. This is a mandatory requirement covering any development, modernization, or migration of information systems, whether automated or non-automated.

This, of course, presents a severe dilemma for the FLIS, as it has not standardized the CAGE code and "reference number" fields. Those fields have many severely conflicting informal, undocumented meanings.

MIL-M-38807 TECH ORDER REQUIREMENTS

PARA 3.6.7.2 Part Number Column. This column shall contain part numbers, including dash nrs, assigned to each listed part IAW with DOD-STD-100 requirements.

PARA 3.6.7.3. CAGE column. The appropriate CAGE code ..shall be listed in the part number column. ... the CAGE code shall identify the design activity or Government agency whose number appears in the part number column.


MIL-M-38807B(USAF)

TO33D7-12-161-1

FIGURE & INDEX SHEET NO.	PART NUMBER	CAGE	1 2 3 4 5 6 7 DESCRIPTION	UNITS PER ASSY	USABLE ON CODE	SMR CODE
1	66L1541-004	28009	MAINTENANCE DATA RECORDER	1	A	PAOZZ
	66L1541-003	28009	MAINTENANCE DATA RECORDER	1	B	PAOZZ
1/1	66L0909-001	28009	. COVER ASSY, Circuit card access (See figure 2 for detail breakdown)	1		PAFF
2/1	66L1056-001	28009	. COVER ASSY, Blank (See figure 3 for detail breakdown)	1		PAFF
3/1	MS16995-35	96906	. SCREW, Shipping	2		PAZZZ
4/2	66L0969-003	28009	. COVER ASSY, Motor access	1		ADD
5/2	PS3780D6-A	15439	. . SCREW, Captive (3800 SCD 66L1238-001)	4		PAZZZ
6/2	66L0969-101	28009	. . COVER	1		ADD
7/3	66L0997-003	28009	. . CONTROL PANEL ASSY (See figure 4 for detail breakdown) (A1)	1		PAFDA
8/3	2007-8973-003	28009	. CIRCUIT CARD ASSY, MDB Interface (See figure 5 for detail breakdown) (A2)	1		PAFLA
9/3	66L1244-004	28009	. CIRCUIT CARD ASSY, Control (See figure 7 for detail breakdown) (A3)	1		PAFLA
10/3	66L1445-002	28009	. CIRCUIT CARD ASSY, Tape drive control (See figure 8 for detail breakdown) (A4)	1		PAFLA
11/1	2x610594-001	28009	. DOOR STOP ASSY	1		PADZZ
12/1	66L0039-001	28009	. SCREW, Shoulder, door stop (AP)	1		PAZZZ
13/1	66L0039-001	28009	. SCREW, Shoulder, door stop (AP)	1		PAZZZ
14/1	2x611243-001	28009	. DOOR ASSY, Cartridge loading access (See figure 9 for detail breakdown)	1		PADDD
15/1	66L0191-001	28009	. SCREW, Machine thread, round head (AP)	1		PAZZZ
16/1	MS35000R...	96906	. WASHER (AP)	2		PAZZZ

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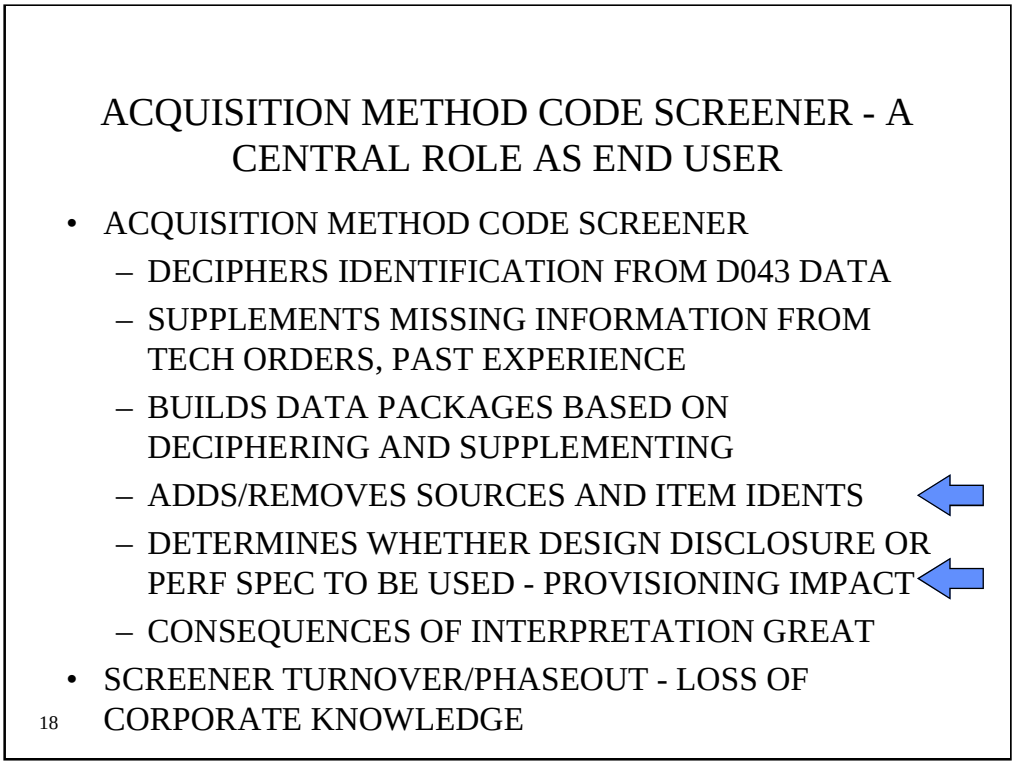
Tech orders is a sample of single meaning data fields.

Let's take a look at how tech orders identify items.

As you can see by this excerpt from the MIL-spec that instructs how to prepare technical order Illustrated Parts Breakdowns, items have to be identified in accordance with MIL-STD-100 for part numbers and design activities. That means they use the part number and the original design activity CAGE code to identify parts per MIL-STD-100. This makes the tech order practice compatible with configuration management, engineering, and engineering data, and with their data base practices. That means that their information systems can interface with one another with regard to the identification of items.



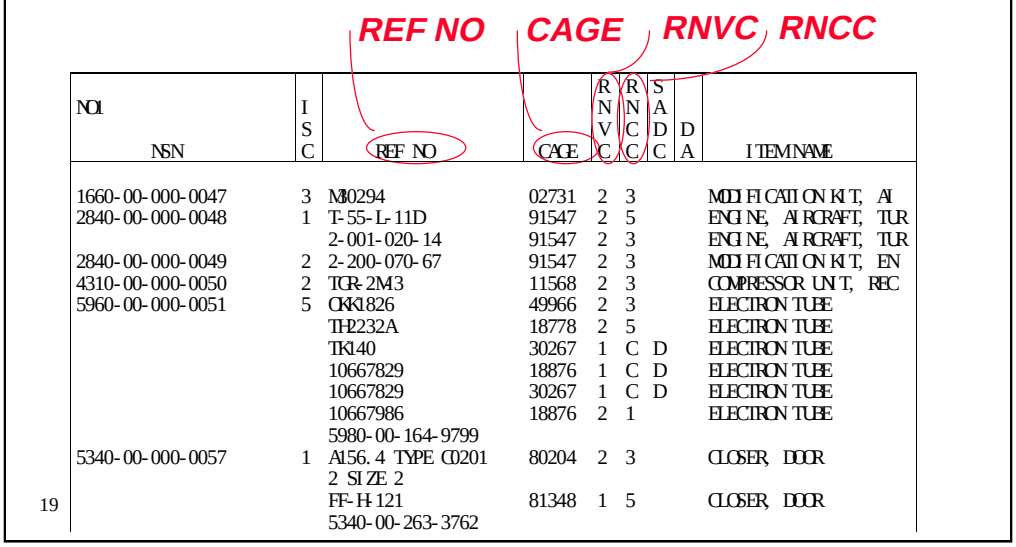
We now transition to a new phase in our presentation: That of the application of item identification by personnel and systems. Here we describe one of the FLIS's most ignored and yet most important end users, and who ironically is also a major supplier of information to the FLIS.

In the area of spare parts replenishment, one of the most important and critically impacted users of the FLIS is the Acquisition Method Code Screener. This individual must translate obscure and conflicting FLIS data to the actual identification of the item that is to be reprocured. For missing or incorrect FLIS information, the screener must research engineering data and Technical Orders, and also consult with engineering personnel. Data which has been determined to be incorrect (which may be "correct" by some FLIS personnel interpretations) must be ignored. The stock number must be determined to be "performance" or "design disclosure" in nature, as that impacts the data that may be selected and used for acquisition. Whether the part is repairable or throwaway impacts the screener's decisions. The screener adds or removes sources. If the FLIS shows unsupported CAGE codes, the screener must decide what they represent or ignore them. In 1994, OC-ALC's breakout screeners had to use the FLIS to determine the identification of **1.7 billion dollars** in goods. At present, the chaotic, highly inconsistent entries in the FLIS are making the screeners critical job increasingly difficult.

The FLIS is very dependent on the screener for "sources". One of the screener's products used by the FLIS is the placement of sources on the Form 761. Ironically, when FLIS personnel takes the screener's "source" information from the Form 761s to update the FLIS, it feeds incorrect identification back to the screener.

The experience of screeners is critical in determining the correct items to buy, and of overcoming critically deficient FLIS data. But we are losing screeners, and their corporate knowledge is disappearing. There should be serious concern over transfers to inexperienced personnel unable to overcome the shortcomings of the FLIS.

FLIS -- "REF NO" AND "CAGE" DATA FIELDS INCLUDES DATA DIFFICULT TO DEENCRYPT



NOL NSN	ISC	REF NO	CAGE	RNVC	RNCC	SADC	DA	ITEM NAME
1660-00-000-0047	3	M30294	02731	2	3			MODIFICATION KIT, AI
2840-00-000-0048	1	T-55-L-11D	91547	2	5			ENGINE, AIRCRAFT, TUR
		2-001-020-14	91547	2	3			ENGINE, AIRCRAFT, TUR
2840-00-000-0049	2	2-200-070-67	91547	2	3			MODIFICATION KIT, EN
4310-00-000-0050	2	TCR-2M3	11568	2	3			COMPRESSOR UNIT, REC
5960-00-000-0051	5	CKK1826	49966	2	3			ELECTRON TUBE
		TH2232A	18778	2	5			ELECTRON TUBE
		TK140	30267	1	C	D		ELECTRON TUBE
		10667829	18876	1	C	D		ELECTRON TUBE
		10667829	30267	1	C	D		ELECTRON TUBE
		10667986	18876	2	1			ELECTRON TUBE
		5980-00-164-9799						
5340-00-000-0057	1	A156.4 TYPE C0201 2 SIZE 2	80204	2	3			CLOSER, DOOR
		FF-H-121	81348	1	5			CLOSER, DOOR
		5340-00-263-3762						

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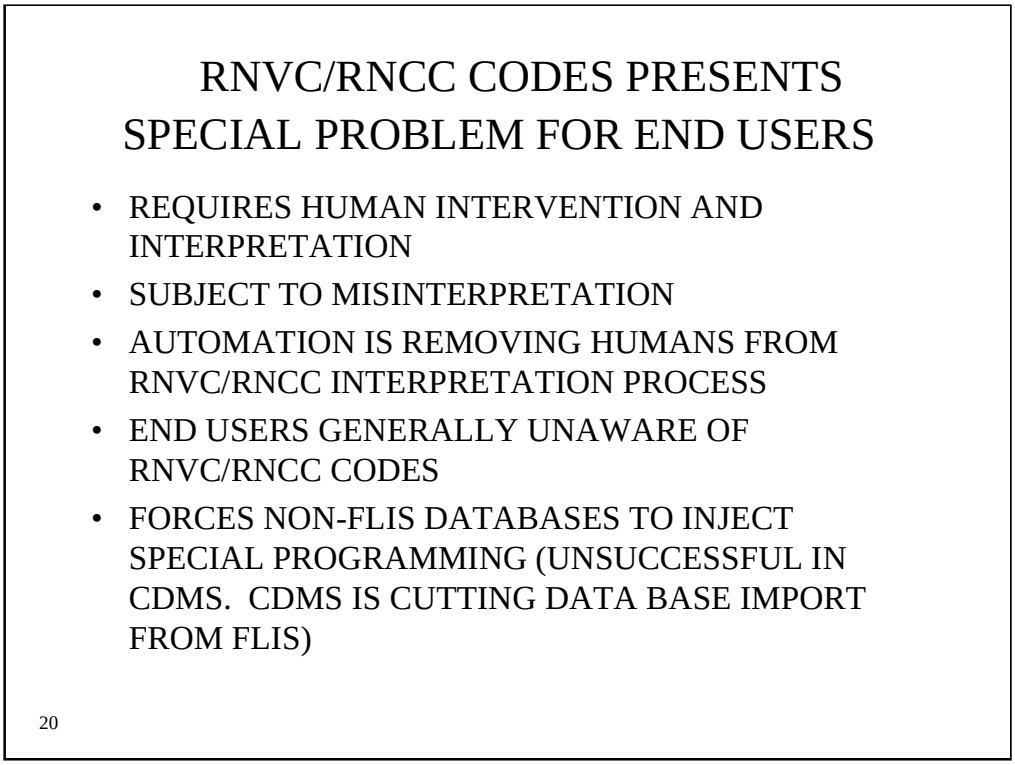
Let's take a look at DLA's FLIS -- the system we customers are using. You see here that DLA's FLIS has only two columns to identify items, a CAGE code column and a Reference Number column. This is a very primitive system that is a carryover from the 1950s when all data processing was done with 80 column IBM cards. The reason the FLIS has only two columns for identification is because back in 1950s, the FLIS just couldn't put all the information they needed on that little 80 column card. So since they couldn't cram all of the information they needed on that little card, they combined the part number and drawing number fields into one field and called it a reference number, and then the FLIS created special codes that tried to give more information about the reference number. Just the reference number. They didn't create any special codes to tell about the CAGE code. Supposedly those codes tell customers what kind of number the reference number is, such as a part number or a specification number, but few can agree on their interpretation. Do any of the customers understand the reference number codes? Well, in 1986 it was found in a survey of FLIS and customer personnel that 48% of the respondents didn't know what those RNCC and RNVC codes were for, and didn't see any reason for them. Ironically, about half of the questionnaires went to customers, and the other half went to FLIS personnel. Think about that one. The situation is worse now than in 1986, because customers can't find reference numbers. Why? The FLIS hid the reference number. They changed the heading on the reference number column to read "part number". Why do they still have reference number codes if they don't have reference numbers anymore? It gets worse: the FLIS puts numbers in that part number column now that are **not** part numbers.

Now let's look at that CAGE code column: The FLIS makes no distinction about what the CAGE code in the CAGE code column is supposed to represent. The FLIS literally does not know. That is in writing, and I have researched FLIS directives. The FLIS does not know whether the CAGE code is the original design activity, a current design activity, a source, or what. And it gets worse. In the 1950s, there was no intention of the CAGE code column to show sources. But in 1988 after a GSA audit, they started adding sources, but they never changed the system to describe how we're supposed to know what the CAGE represents. Every FLIS person has their own "interpretation" and enters any CAGE they want.

Just remember this: The FLIS has only two columns to tell us what we need to know: A CAGE code column and reference number column, and there's no agreement in FLIS on what either one is supposed to mean. But FLIS does agree that users have to be able to "interpret" the codes, although they disagree on interpretation.



The problem represented by the RNVC and RNCC codes and having only two data fields for identification and other purposes is that they require human interpretation and research. Computers can't interpret the codes and meanings of the CAGE code and reference number columns, because humans themselves can't agree on what the codes and fields mean.

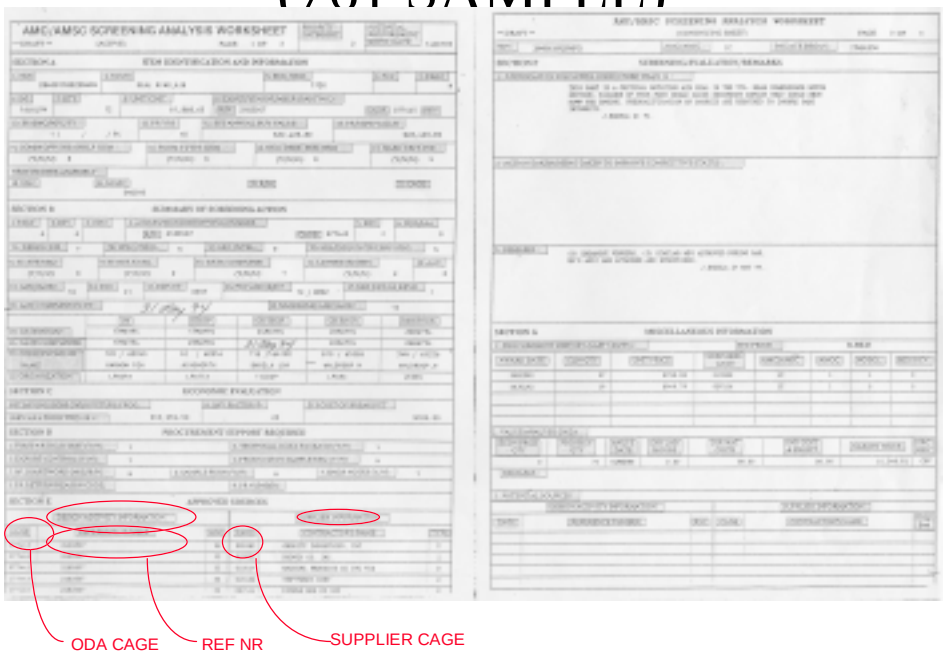
There is a lot of misinterpretation taking place in the FLIS, and there is no criteria even for what is to be considered misinterpretation.

But automation is removing humans from the interpretation process. With downsizing and automation, we're not going to have enough humans around to interpret and research FLIS codes and data entries.

And automation is bringing all of our different databases together so that we're having other computers trying to talk to FLIS and exchange data. But the other data bases have problems with FLIS data, because those other databases do not use the primitive RNVC and FLIS codes from the 1950s. They use single meaning data fields, and they have never heard of RNVC/RNCC codes.

For other data bases to try and talk to FLIS, they have to set up special programming that of course cannot work, because the FLIS allows conflicting interpretations. The ALC database for reprocurement screening, CDMS, has connected to the FLIS, and is getting conflicting and defective identification data. They're trying to pull the plug on most of the automated feeds due to the many errors the FLIS injects into CDMS.

(761 SAMPLE)



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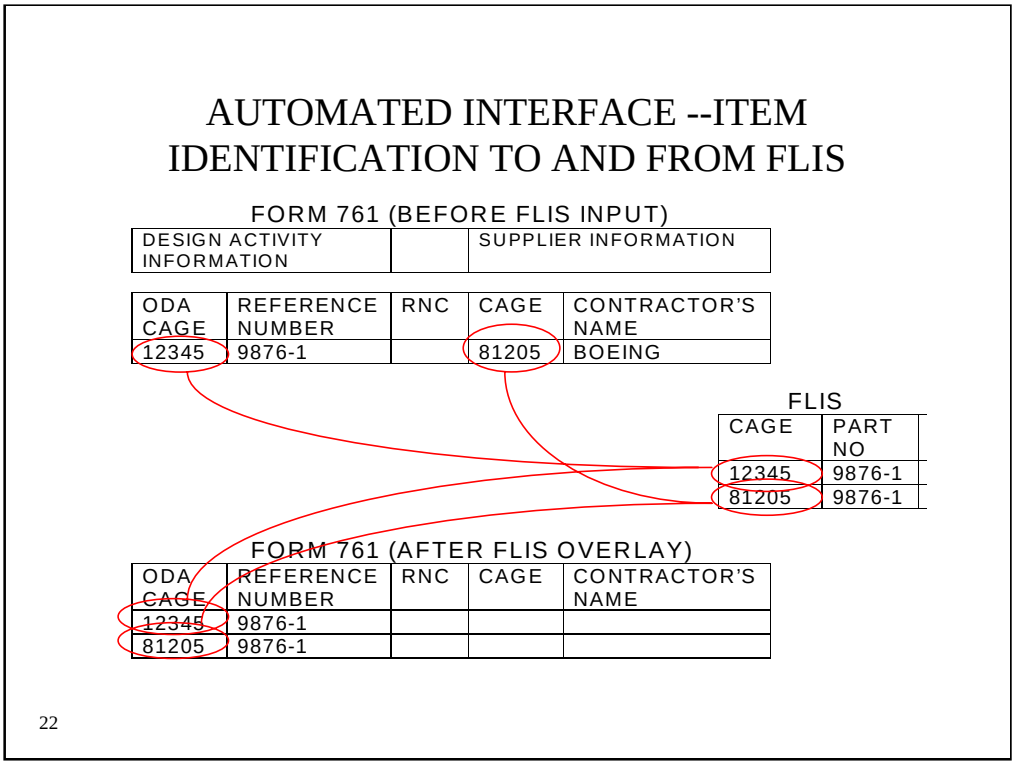
Here are the data fields that we breakout screener and procurement customers must have to procure an item. You will note that whereas the FLIS has only one data field for CAGE codes, the AFLC Form 761 has two, ODA CAGE code and known source CAGE code. We must have the original design activity CAGE code (or ODA) for the part, and the part number for the part. (The part number is called reference number here because that is the term that the FLIS formerly used at the time this form was made up). Then, if there is a source for the part, we list those, if any, by the CAGE code and name over on the right side of the form.

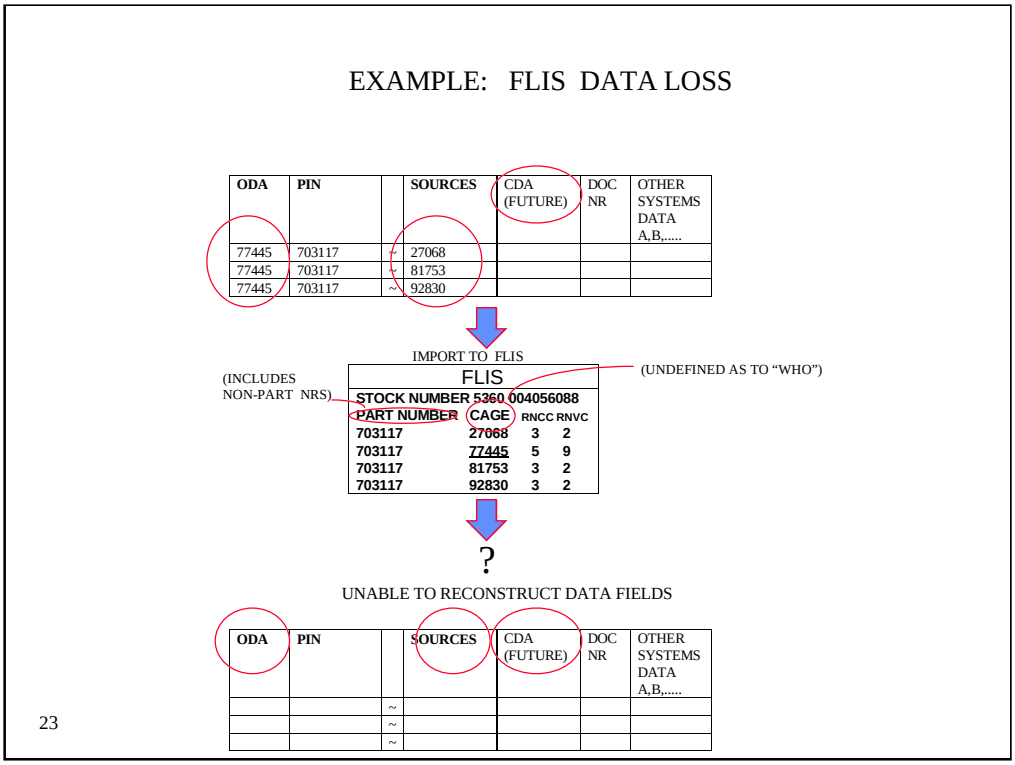
It is important to note that there is absolutely no relationship of the source fields with the original design activity fields. Sometimes the ODA won't be a source. Sometimes not even the CDA (current design activity) will be a source.

Sometimes a company will have their ODA at one facility, and their sales office in another with a different CAGE code. We put the ODA on the left side of the form to identify the item, and we put that company's sales office CAGE code over on the right side of the form as a source.



As stated earlier, the FLIS relies on their breakout screener customers to provide sources to the FLIS. Here is what happens. Look in the middle on the right. FLIS personnel receive a copy of the customer's 761 form and observes the design activity CAGE code on the left and the approved source CAGE code on the right and enters them BOTH in the **same** CAGE code column in the FLIS! Now, at the bottom, you see that the automated Form 761 has a direct interface feed into it from the FLIS. The sources they add from the 761 are automatically overlaid back into the Form 761 on the wrong side -- the design activity side.

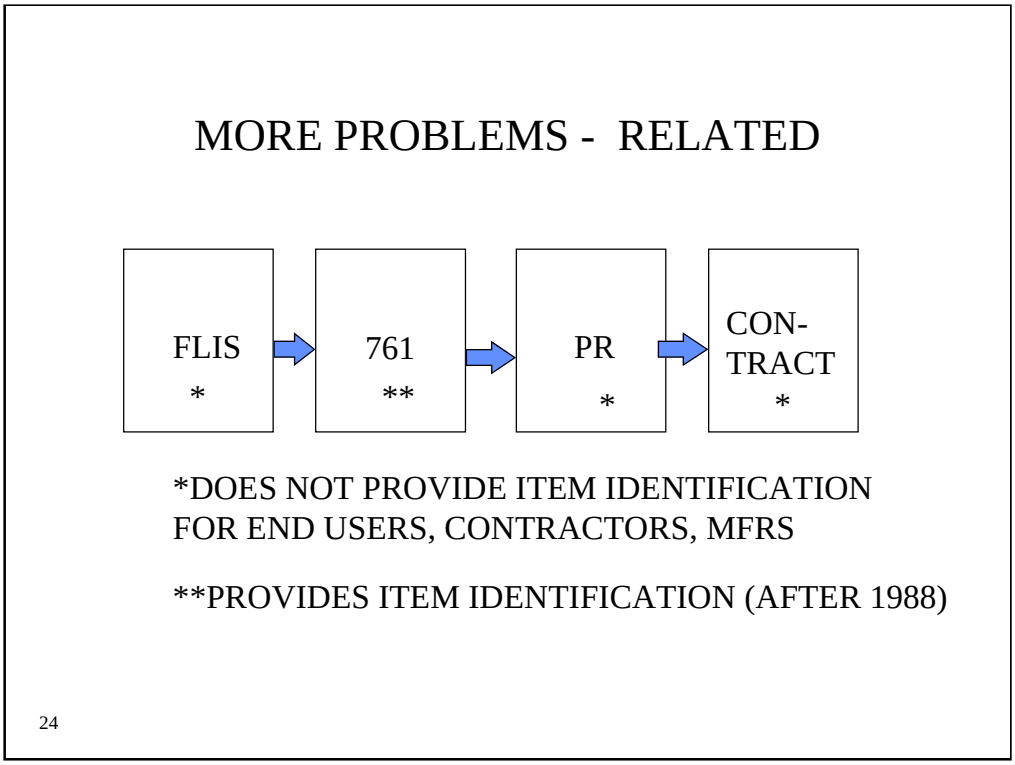
How can they be kept separate and put back in their proper columns? It is not possible, because there are literally no FLIS rules for what is to be placed in the CAGE code column. None. There are rules for the reference number, but none for the CAGE code.



Here is an actual example of how the FLIS loses data.

For this stock number, on the Form 761 shown at the top, we have three sources shown for a CAGE Code 77445 Pratt and Whitney part number 703117. As you can see, when that information was imported to the FLIS, all of the CAGE codes winds up in one unidentified CAGE code column. Now assume that we lost the Form 761, and we have to reconstruct the 761 there at the bottom using the information that was earlier fed into the FLIS from the lost Form 761. As you can see, it is impossible. It cannot be done. The data is garbled.

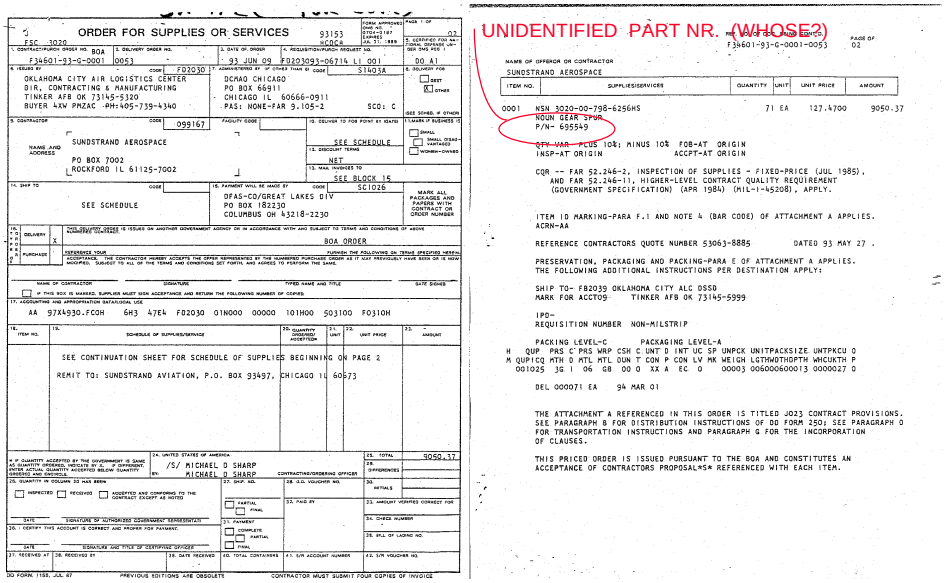
(You will notice there is a new column on this slide called "CDA", for "current design activity". I put that there because there are are database plans to add that column to the Form 761. It is not related to identification, but is sometimes necessary information to have, and therefore it, too, should be in the FLIS.)



We have problems in other stages of the procurement system that are related to the FLIS. The FLIS, the Purchase Request (or PR), and the solicitation/ contract does not identify parts. They do not identify <u>whose</u> part number we want to buy. They just show an unidentified part number.

The solicitation/contract could show whose part number, but it gets its information for the PR, and the PR doesn't show it. The PR could get the "whose" information from the 761, but doesn't. The 761 began showing whose part number we wanted in 1988, but the screener has to provide that with independent research. The 761 should be able to get it from the FLIS, but can't because the FLIS doesn't show it.

(SAMPLE CONTRACT)



ORDER FOR SUPPLIES OR SERVICES

FSC 3020

SUNDSTRAND AEROSPACE
PO BOX 7002
ROCKFORD IL 61125-7002

SEE SCHEDULE

OKLAHOMA CITY AIR LOGISTICS CENTER
DIR, CONTRACTING & MANUFACTURING
TINKER AFB OK 73145-5320
BUYER 4XW PMZAC -PH:405-739-4340

DCMAO CHICAGO
PO BOX 66911
CHICAGO IL 60666-0911
PAS: NONE-FAR 9.105-2

OFAS-CO/GREAT LAKES DIV
PO BOX 182230
COLUMBUS OH 43218-2230

BOA ORDER

SEE CONTINUATION SHEET FOR SCHEDULE OF SUPPLIES BEGINNING ON PAGE 2

REMIT TO: SUNDSTRAND AVIATION, P.O. BOX 93497, CHICAGO IL 60673

/S/ MICHAEL D SHARP

UNIDENTIFIED PART NR. (WHOSE?)

SUNDSTRAND AEROSPACE

ITEM NO.	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001	NSN 3020-00-798-6256HS NOUN GEAR SPUR P/N- 695549	71	EA	127.4700	9050.37

QTY VAR - PLUS 10%; MINUS 10% FOB-AT ORIGIN
INSP-AT ORIGIN ACCPT-AT ORIGIN

CQR -- FAR 52.246-2, INSPECTION OF SUPPLIES - FIXED-PRICE (JUL 1985), AND FAR 52.246-11, HIGHER-LEVEL CONTRACT QUALITY REQUIREMENT (GOVERNMENT SPECIFICATION) (APR 1984) (MIL-I-45208), APPLY.

ITEM ID MARKING-PARA F.1 AND NOTE 4 (BAR CODE) OF ATTACHMENT A APPLIES.
ACRN-AA

REFERENCE CONTRACTORS QUOTE NUMBER 53063-8885 DATED 93 MAY 27 .

PRESERVATION, PACKAGING AND PACKING-PARA E OF ATTACHMENT A APPLIES.
THE FOLLOWING ADDITIONAL INSTRUCTIONS PER DESTINATION APPLY:

SHIP TO- FB2039 OKLAHOMA CITY ALC OSSB
MARK FOR ACCT09 TINKER AFB OK 73145-5999

IPD-
REQUISITION NUMBER NON-MILSTRIP

PACKING LEVEL-C PACKAGING LEVEL-A
H QUP PRS C PRS WRP CSH C UNT D INT UC SP UNPCK UNITPACKSIZE UNTPKCU Q
M QUPICQ MTH D MTL MTL DUN T CON P CON LV MK WEIGH LGTHWDTHDPTH WMCUKTH P
001025 JG I 06 GB 00 O XX A EC O 00003 006000600013 0000027 D

DEL 000071 EA 94 MAR 01

THE ATTACHMENT A REFERENCED IN THIS ORDER IS TITLED J023 CONTRACT PROVISIONS. SEE PARAGRAPH B FOR DISTRIBUTION INSTRUCTIONS OF DD FORM 250; SEE PARAGRAPH D FOR TRANSPORTATION INSTRUCTIONS AND PARAGRAPH G FOR THE INCORPORATION OF CLAUSES.

THIS PRICED ORDER IS ISSUED PURSUANT TO THE BOA AND CONSTITUTES AN ACCEPTANCE OF CONTRACTORS PROPOSAL#SA REFERENCED WITH EACH ITEM.

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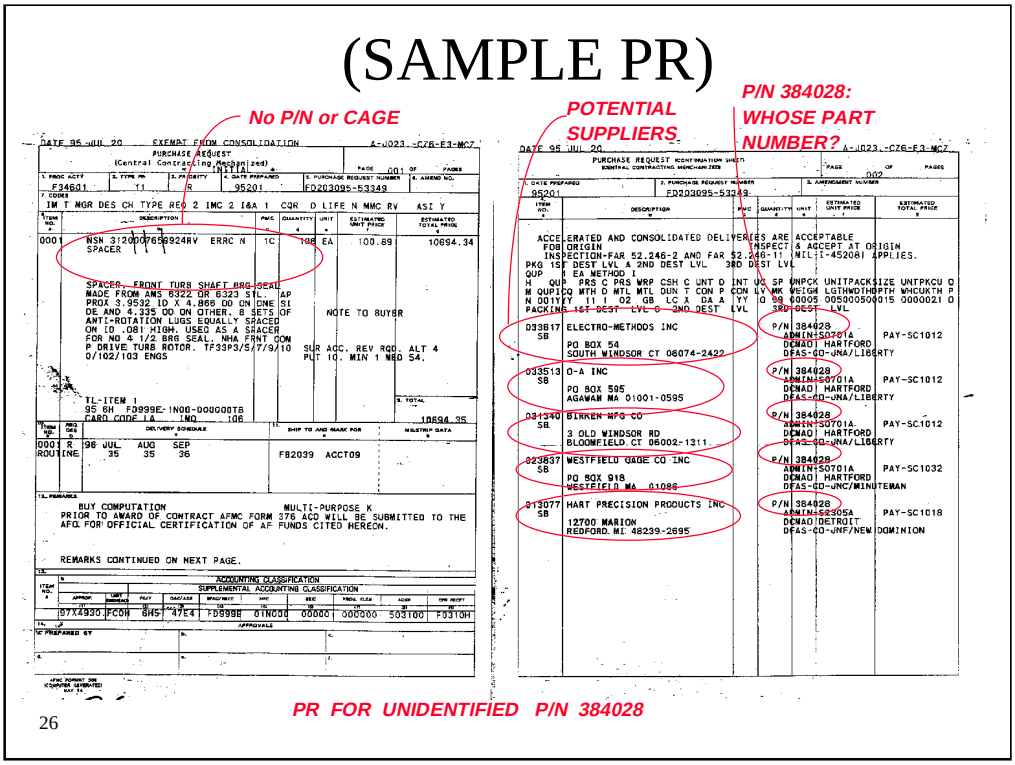
Working backward from the solicitation/contract, you can see that the line item in the contract for the hardware merely shows a part number without saying whose. That could be anyone's part number.

That's why we get so many "no bids'.

That's why we get wrong parts.

That's why we have to argue with contractors to convince them it is their part, or that they have made the part before.



The purchase request (PR) does not identify whose part we want. The front page of the PR doesn't give any part numbers. The back of the PR just lists suppliers and part numbers unidentified as to whose. This PR is for a PWA part, CAGE code 77445, P/N 384028. Notice on the right we have 5 sources for that part number, but PWA is not shown anywhere on the form -- neither as the part's ODA nor a source.

This costly omission from the PR and solicitation is not the direct fault of the FLIS, because the PR system was created by Air Logistics Centers in the early 1960s before the current item identification system of 1967 was developed. The PR system has never been updated to show complete item identification. But right now the only source of providing item identification to the PR and contract is through the breakout screener's research efforts on the AFLC Form 761.

FLIS INCLUDES ODA DATA FIELD IN DATA DICTIONARY

- MEDALS (Military Engineering Data Asset Locator System)
  - PUBLIC LAW DIRECTS MEDALS DATA BASE
  - SYSTEM INCLUDES THE DATA FIELDS "MEDALS CAGE CODE" AND "MEDALS PART NUMBER".
  - ALL ENTERED PER MIL-STD-100 USING ODA CAGE AND PART NUMBER.

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For those in FLIS who say that it would be difficult to create a new "ODA" data field to satisfy the customer's need for one, that "ODA" data field already exists in the FLIS system. That ODA CAGE code field is listed in DOD 4100.39-M Volume 12, Data Element Dictionary. The FLIS data dictionary also has true part number and document number fields that have none of the confusion of the present reference number field. All one has to do now is change the screens to make those existing fields available.

How did the ODA CAGE code and true document number and part number data fields get into the FLIS? In 1986 or so, public law directed that DLA shall create and maintain a data base that tells anyone in DOD where to find a specific engineering data document that is in a government repository. This system in FLIS is called MEDALS (or Military Engineering Data Asset Locator System). There was only one way for MEDALS to do that, and that was to create new ODA CAGE code, document number, and part number fields that matched the MIL-STD-100 way that customers identify engineering data and parts.

ZERO BASED QUESTION

- IF DESIGNING THE FLIS FOR THE FIRST TIME,
  - WOULD IT USE THE PRESENT "TWO DATA FIELD" SYSTEM?
  - WOULD "RNVC/RNCC" CODES BE CONSIDERED A LOGICAL MEANS OF CONVEYING INFORMATION TO THE END USER?

28

(Read)

(Pause)

No way.

("RNVC/RNCC" is "Reference Number Variation Code" and "Reference Number Category Code". Their inadequate definitions and controversial interpretations are outside the scope of this presentation.)

CONSEQUENCES OF NOT MEETING END USER NEEDS

- LOST BIDS FROM KNOWN MFRS DUE TO UNIDENTIFIED PART NOs. (MORE COST)
- ENTIRELY WRONG PARTS OF "RIGHT PART NR --WRONG CAGE CODE"
- NO CONFIGURATION OR CHANGE CONTROL. ALL SUPPLIERS CAN MAKE A PART NUMBER TO THEIR OWN UNCONTROLLED "ORIGINAL" DRAWING.
- LOSS OF DATABASE INTERFACEABILITY
- MISSION FAILURES, LOSS OF LIFE

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Here are the consequences of failure to meet users' needs.

(Read bullets)

CONCLUSION: END USER NEEDS FOR IDENTIFICATION AND RELATED PROCUREMENT INFORMATION

- PROVIDE MINIMUM DATA PER OC-ALC/FMIR WHITE PAPER DTD 7 JULY 94
  - BOTH MANUAL AND AUTOMATED
  - ODA, CDA, P/N, DOCUMENT, SOURCES
- PROVIDE SINGLE MEANING DATA FIELDS
- USE MIL-STD-100 SYSTEM FOR IDENTIFICATION OF ITEMS AND DOCUMENTS

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In conclusion, this is what the end users of the FLIS need for identification and related procurement information:

(Read bullets)

That's it.

Any questions?

SUPPLEMENT TO "INFORMATION NEEDS OF THE FLIS BY ITS END USERS"

EXAMPLES:
FLIS DISAGREEMENT ON RNVC/RNCCs

PRATT AND WHITNEY ITEMS

STOCK NUMBER 5340 003828359

PART NUMBER	CAGE	CAT CD	VAR CD
4022079	11449	3	2
4022079	77445	5	9

STOCK NUMBER 4730 011626741

PART NUMBER	CAGE	CAT CD	VAR CD
424887	11449	5	2
424887	77445	3	2

STOCK NUMBER 2840 009196944

PART NUMBER	CAGE	RNCC	RNVC
473167	71687	5	2
473167	75370	5	2
473167	77445	3	2
473167	03120	5	2
473167	09612	5	2
473167	11449	5	9

STOCK NUMBER 5360 004056088

PART NUMBER	CAGE	CAT CD	VAR CD
703117	27068	3	2
703117	77445	5	9
703117	81753	3	2
703117	92830	3	2

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This slide gives you an idea about how much controversy there is within FLIS on how to apply RNVC/ RNCC codes. It demonstrates why customers cannot obtain accurate data from the FLIS, and why information systems cannot interface with it. There is rampant confusion and no guidance on the FLIS side for data input. These parts in the slide are simple but very critical Pratt and Whitney Aircraft (PWA) tubing parts on the same engine. If these tubes go bad, you can lose an engine or the whole plane. First, remember that the RNVC/RNCC codes are supposed to tell what kind of reference number the reference number is. It has no relationship to CAGE codes. Next, the FLIS changed the reference number to "Part number". That's why customers are having trouble finding the reference numbers now. Now, notice that in the upper left, the RNVCC/RNCC for the part number next to PWA says this part number is canceled (5,9). Same for the PWA P/N on the lower right. So if we interpret that correctly, if we see a 5,9, that means that is the item we want to buy. But no, in the other two corners, the RNVC/RNCC is 3,2. So, maybe 3,2 indicates that is what we want to buy. But no, in the lower right, "3,2" means that is <u>not</u> the item we want to buy. Maybe 3,2 means sources, but no, in the lower left, "5,2" could mean sources. But no, CAGE code 11449, which is Turbo Power and Marine, is code 3,2; 5,2; and 5,9. They stopped doing business with the government in 1988. Nothing makes any sense.

Is there any wonder that us customers are having trouble, and computers can't interface with the FLIS?

Some FLIS activities and individuals read more into the reference number codes than actually stated by the codes. They believe that the codes extend to a <u>combination</u> of the CAGE code and reference number. Nothing in DLA directives suggests that the codes apply to a "combination" of CAGE code and reference number. Further, there is NO guidance anywhere in DLA for what is to be entered in the CAGE code column. Some believe it is the "source" for the part number, others believe it is the current design activity, and others believe it is the preparing activity. <u>There is literally no DLA guidance for the CAGE code entry!!!.</u>

This illustrates only the simplest FLIS "identification" practice. There are hundreds of examples that are far worse, and that are much harder to illustrate.